WO 03/085087

AA

PCT/US03/10916

SEQUENCE LISTING

10/510677

SEQ ID NO.: 1; AAC2-1 nucleotide sequence 5 AC TCGCCACTCCTCCGACGTGCTGGGCAACCTCAACGAGCTGCGCCTGCGCGGGATCCTCACTGACGTCACGCTGCT GG TTGGCGGGCAACCCCTCAGAGCACAAGGCAGTTCTCATCGCCTGCAGTGGCTTCTTCTATTCAATTTTCCGGG GC CGTGCGGGAGTCGGGGTGGACGTGCTCTCTCTGCCCGGGGGTCCCGAAGCGAGAGGCTTCGCCCCTCTATTGGAC 10 TT ${\tt CATGTACACTTCGCGCCTGCGCCTCTCTCCAGCCACCAGCAGCAGTCCTAGCGGCCGCCACCTATTTGCAGATCCTAGCGGCCGCCACCTATTTGCAGATCCTAGCGGCCGCCACCTATTTGCAGATCCTAGCGGCCGCCACCTATTTGCAGATCCTAGCGGCCGCCACCTATTTGCAGATCCTAGCGGCCGCCACCTATTTGCAGATCCTAGCGGCCGCCACCTATTTGCAGATCCTAGCGGCCGCCACCTATTTGCAGATCCTAGCGGCCGCCACCTATTTGCAGATCCTAGCGGCCGCCACCTATTTGCAGATCCTAGCGGCCGCCACCTATTTTGCAGATCCTAGCGGCCGCCACCTATTTTGCAGATCCTAGCGGCCGCCACCTATTTTGCAGATCCTAGCAGATCCTAGCGGCCGCCACCTATTTTGCAGATCCTAGCAGATCCTAGCAGATCCTAGCAGATCCTAGATCCTAGATCCTAGATCCTAGATCCTAGATCTAGATCTAGATCAGATCTAGATCAGAT$ GG AGCACGTGGTCCAGGCATGCCACCGCTTCATCCAGGCCAGCTATGAACCTCTGGGCATCTCCCTGCGCCCCCTGG 15 AA GCAGAACCCCCAACACCCCCAACGGCCCCTCCACCAGGTAGTCCCAGGCGCTCCGAAGGACACCCAGACCCACCT AC TGAATCTCGAAGCTGCAGTCAAGGCCCCCCCAGTCCAGCCCAGCCCTGACCCCAAGGCCTGCAACTGGAAAAAGTA CA AGTACATCGTGCTAAACTCTCAGGCCTCCCAAGCAGGAGCCTGGTCGGGGAGAGAAGTTCTGGTCAACCTTGCC 20 CC CAAGCCAGGCTCCCCAGTGGAGACGAGGCCTCCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGTGAAGAAGGA CC 25 CC CCTACCTCCTCACATCCCAGGCTCAAGACACCTCTGGATCACCCTCTGAACGGGCTCGTCCACTACCGGGAGTGA AT TTTTCAGCTGCCAGAACTGTGAGGCTGTGGCAGGGTGCTCATCGGGGGCTGGACTCCTTGGTTCCTGGGGACGAA GA CAAACCCTATAAGTGTCAGCTGTGCCGGTCTTCGTTCCGCTACAAGGGCAACCTTGCCAGTCACCGTACAGTGCA 30 CA CAGGGGAAAAGCCTTACCACTGCTCAATCTGCGGAGCCCGTTTTAACCGGCCAGCAAACCTGAAAACGCACAGCC GC ATCCATTCGGGAGAGAGCCGTATAAGTGTGAGACGTGCGGCTCGCGCTTTGTACAGGTGGCACATCTGCGGGCG 35 CGTGCTGATCCACACCGGGGAGAAGCCCTACCCTTGCCCTACCTGCGGAACCCGCTTCCGCCACCTGCAGACCCT CA ${\tt AGAGCCACGTTCGCATCCACACCGGAGAGAGCCTTACCACTGCGACCCCTGTGGCCTGCATTTCCGGCACAAGA}$ GT CAACTGCGGCTGCATCTGCGCCAGAAACACGGAGCTGCTACCAACACCAAAGTGCACTACCACATTCTCGGGGGG 40 CC $\tt CTAGCTGAGCCCAGGCCCACTTGCTTCCTGCGGGTGGGAAAGCTGCAGGCCCAGGCCTTGCTTCCCTA$ TC AGGCTTGGGCATAGGGGTGTGCCAGGCCACTTTGGTATCAGAAATTGCCACCCTCTTAATTTCTCACTGGGGAGA 45 GC AGGGGTGGCAGATCCTGGCTAGATCTGCCTCTGTTTTGCTGGTCANACCCTCTTCCCCACAAGCCAGATTGTTTC TG AGGAGAGAGCTAGCTAGGGGCTGGGAAAGGGGAGAGATTGGAGTCCTGGTCTCCCTAAGGGAATAGCCCTCCACC TG TGGCCCCCATTGCATTCAGTTTATCTGTAAAATATAATTTATTGAGGCCTTTGGGTGGCACCGGGGCCTTCATTC 50 TTGCATTTCCCACTCCCCTCTTCCACAAGTGTGATTAAAAGTGACCAGAAACACAGAAGGTGAGATCACAGCTCT TGGCAGAGATTACTAGCCCTTGGCTCTCGCTTTGGCTTGGGTATTTTATATTATTTCTGTCATAACTTTTATCT 55

34

AGAATTGTTCTTCTCCTGTTTGTTTGCTTGTTTAGTTTTAAAATGGAAAAAGGGGTTCTCTGTGTTCTGCCCC

GTAATTCTAGGTCTGGAACCTTTATTTGTTCTAGGGCAGCTCTGGGAACATGCGGGATTGTGGAATTGGGTCAGG

CCCTCTCTGGTATTCTGGATGTTGTAGGTTCTCTAGCAGTCTAGAAATGGATACAGACATTTCTCTGTTCTTCAA GG GTGATAGGAACCATTATGTTGAGCCCAAAATGGAAGTAATAATAAATGCCTCCTGGAGGCTGTGGGTGTGGGGGA

- 5 CTGTATCTGGATTCCGTATCACTCCAACTGGAGGCTGTGGGGGGGATTCTGTATCTGGATTCCGTATCACT CC
 - $\textbf{AAGTGGAGGCTGGCAGGTTTTTCTGCAAGATGGTCCAGAATCTAAAATGTCCCATTAATCTGGTCACTTGGGTTT}\\ \textbf{GG}$
- CTCTGCTGTATCCATCTATAGTGGTAGAGACCCACCAGGGCTCAAGTGGAGTCCATCATCCTCCCACGGGGCCT

 10 GT
- TCTTAGTACTGAGTTGATCGCTCCATGGGGGAGAGATCAGACATTCCTTATCAGAGATGATGTGACCTTTTCTGA CT CTGCCCAGTCTCTATGAATGTTATGGCCTAGGGAAGAATCATGAAACTCTTTAGCTTGATTAGATGGTAAACAGT
- 15 TAACCCATCCTTTACTACAGAGGCATATGGGTTTGAATGTTACCTGGGGTTCTCTATTGAGTTGAGCCCCTTC
 TT
 CCTTTAGTGGGTTTTGGACATCTTCTGGCAAGTGTCCAGATGCCAGAACCTTCTTTTCCTCTAGAAGGGATGGTG
 - $\tt CT\\ TGGTAACCTTACCTTTTAAAAGCTGGGTCTGTGACCTGGTCTTCCCATCCCTGCATTCCTGTACCAGTGA$
- AT

 25 TAAGAGGTTGGTTGAGGGGTGCAGTTTCTGGTGTAGGCCAGGTAGGAAAGTGAGGAACAGGGTTGCCTCTTG

 GC
- ATCTGATTATGGGACGAGGGTAGAAAGTAAGAAGCACTTTTGAATTTGTGGGGTAGAACTTCAACAATAAGTCAG
- 30 TT
 CTAGTGGCTGTCGCCTGGGGACTAGTGAGAAAGCTACTCTTCTCCCTCTTTCTCCCCATGGCCCCACT
 GC
 - AGAATTAAAGAAGGAAGGAAGGCGGAGGAGTCTATAAGAAGGAATCATGATTTCTATTTAGCAGATTGGAT GG
- 35 GCAGGTGGAGAATGCCTGGGGGTAGAAATGTTAGATCTTGCAACATCAGATCCTTGGAATAAAGAAGCCTCTCTGCG
 - СУУУУУУУУУУУУУУУУУ

SEQ ID NO.: 2; AAC2-2 Open reading frame ATGGGTTCCCCCGCCGCCCCGGAGGGAGCGCTGGGCTACGTCCGCGAGTTCACTCGCCACTCCTCCGACGTGCTGGGCAACCT $\tt CCCGAAGCGAGAGGCTTCGCCCCTCTATTGGACTTCATGTACACTTCGCGCCTGCGCCTCTCTCCAGCCACTGCACCAGCAGT$ ${\tt CCTAGCGGCCACCTATTTGCAGATGGAGCACGTGGTCCAGGCATGCCACCGCTTCATCCAGGCCAGCTATGAACCTCTGG}$ GCATCTCCCTGCGCCCCTGGAAGCAGAACCCCCAACACCCCCAACGGCCCCTCCACCAGGTAGTCCCAGGCGCTCCGAAGGA ${\tt GAAAAAGTACAAGTACATCGTGCTAAACTCTCAGGCCTCCCAAGCAGGGAGCCTGGTCGGGGAGAAAAGTTCTGGTCAACCTT}$ 10 CACATCCCAGGCTCAAGACACCTCTGGATCACCCTCTGAACGGGCTCGTCCACTACCGGGAAGTGAATTTTTCAGCTGCCAGA ${\tt ACTGTGAGGCTGTGGCAGGGTGCTCATCGGGGGCTGGACTCCTTGGTTCCTGGGGACGAAGACAAACCCTATAAGTGTCAGCTG}$ TGCCGGTCTTCGTTCCGCTACAAGGGCAACCTTGCCAGTCATCGTACAGTGCACACAGGGGAAAAGCCTTACCACTGCTCAAT 15 CTGCGGAGCCCGTTTTAACCGGCCAGCAAACCTGAAAACGCACAGCCGCATCCATTCGGGAGAGAAGCCGTATAAGTGTGAGA CGTGCGGCTCGCGCTTTGTACAGGTGGCACATCTGCGGGCGCACGTGCTGATCCACACCGGGGAGAAGCCCTACCCTTGCCCT ACCTGCGGAACCCGCTTCCGCCACCTGCAGACCCTCAAGAGCCACGTTCGCATCCACACCGGAGAGAGCCTTACCACTGCGA CCCCTGTGGCCTGCATTTCCGGCACAAGAGTCAACTGCGGCTGCATCTGCGCCAGAAACACGGAGCTGCTACCAACACCAAAG TGCACTACCACATTCTCGGGGGGCCCTAG 20

<u>SEQ ID NO.: 3; 7524</u>

ATACCCGGAACTCCCTAAGCCTTCTATTAGCTCCAATAATAGTAAGCCTGTCGAAGACAAAGATG

- 25 <u>SEQ ID NO.: 4; 7526</u> GCCTGTGTCCCCTAGACTCCAACTCAGCAACGGAAATAGAACTCTGACCCTGTTTAACGTGACCAGGAAC
 - SEQ ID NO.: 5; 7528
 ACGTGCTTTACGGACCCGATGCTCCTACAATCAGCCCTCTAAACACAAGCTATAGATCAGGGGAAAATCT
- SEQ ID NO.: 7; 7535
 CTGATCTATAGCTTGTGTTTAGAGGGCTGATTGTAGGAGCATCGGGTCCGTAAAGCACGTTGAGAATCAC
 - SEQ ID NO.: 8; 7537
 GATCCACTATTGTTCACGGTAATATTGGGAATGAACAGTTCCTGGGTGGACTGTTGGAAAGTG
- 40 <u>SEQ ID NO.: 9; 7567</u> GACACAGCAAGCTACAAATGCGAAACCCAAAATCCAGTCAGCGCCAGGAGGTCTGATTCAGTGATTCTCA
 - SEQ ID NO.: 10; 7568
 TGAATCAGACCTCCTGGCGCTGACTGGATTTTGGGTTTCGCATTTGTAGCTTGCTGTGTCGTTCCTGGTC
- 45

 SEQ ID NO.: 11; 7576

 GATCCTACACGTGCCAAGCTCACAATAGCGACACCGGACTCAACCGCACAACCGTGACGACGATTACCGTGTATG
 CCGA
- 50 SEQ ID NO.: 12; 7587 CATCCTCAACTGGGTTAGAATTGTTACTAGTTATGAATGGTTTTGGTGGCTCGGCATACACGGTAATCGT
- SEQ ID NO.: 14; 7678

 GTCTAATGATAACCGCACATTGACACTCCTGTCCGTTACTCGCAATGATGTAGGACCTTATGAGTGTGGCATTCA
 GAATG

SEQ ID NO.: 15; 7679
TTTGTATGGCCCAGACGACCCAACTATATCTCCATCATACACCTACTACCGTCCCGGCGTGAACTTGAGCCTTTC
TTGCC

- 5 SEQ ID NO.: 16; 7680
 TGATGGAAACATTCAGCAGCATACTCAAGAGTTATTTATAAGCAACATAACTGAGAAGAACAGCGGACTCTATAC
 TTGCC
- SEQ ID NO.: 17; 7681
 TAAAACAATAACTGTTTCCGCGGAGCTGCCCAAGCCCTCCATCTCCAGCAACAACTCCAAACCCGTGGAGGACAA
 GGATG
- 20
 SEQ ID NO.: 20; 7684
 GCTGCTGAATGTTTCCATCAATCAGCCAGGAGTACTGTGCAGGGGGGTTGGATGCTGCATGGCAAGAAAGGCTCA
 AGTTC
- 25 SEQ ID NO.: 21; 7685
 CGGAACAGTTATTGTTTTAACTGTAGTCCTGCTGTGACCACTGGCTGAGTTATTGGCCTGGCAAGTATAGAGTC
 CGCTG
- SEQ ID NO.: 22; 7686
 CCTCAGGTTCACAGGTGAAGGCCACAGCATCCTTGTCCTCCACGGGT

SEQ ID NO.: 23; CEA-CAP6D ATGGAGTCTC CCTCGGCCCC TCCCCACAGA TGGTGCATCC CCTGGCAGAG GCTCCTGCTC ACAGCCTCAC TTCTAACCTT CTGGAACCCG CCCACCACTG CCAAGCTCAC TATTGAATCC ACGCCGTTCA ATGTCGCAGA GGGGAAGGAG GTGCTTCTAC TTGTCCACAA TCTGCCCCAG 35 CATCTTTTTG GCTACAGCTG GTACAAAGGT GAAAGAGTGG ATGGCAACCG TCAAATTATA GGATATGTAA TAGGAACTCA ACAAGCTACC CCAGGGCCCG CATACAGTGG TCGAGAGATA ATATACCCCA ATGCATCCCT GCTGATCCAG AACATCATCC AGAATGACAC AGGATTCTAC ACCCTACACG TCATAAAGTC AGATCTTGTG AATGAAGAAG CAACTGGCCA GTTCCGGGTA TACCCGGAGC TGCCCAAGCC CTCCATCTCC AGCAACAACT CCAAACCCGT GGAGGACAAG 40 GATGCTGTGG CCTTCACCTG TGAACCTGAG ACTCAGGACG CAACCTACCT GTGGTGGGTA AACAATCAGA GCCTCCCGGT CAGTCCCAGG CTGCAGCTGT CCAATGGCAA CAGGACCCTC ACTCTATTCA ATGTCACAAG AAATGACACA GCAAGCTACA AATGTGAAAC CCAGAACCCA GTGAGTGCCA GGCGCAGTGA TTCAGTCATC CTGAATGTCC TCTATGGCCC GGATGCCCCC ACCATTTCCC CTCTAAACAC ATCTTACAGA TCAGGGGAAA ATCTGAACCT CTCCTGCCAC 45 GCAGCCTCTA ACCCACCTGC ACAGTACTCT TGGTTTGTCA ATGGGACTTT CCAGCAATCC ACCCAAGAGC TCTTTATCCC CAACATCACT GTGAATAATA GTGGATCCTA TACGTGCCAA GCCCATAACT CAGACACTGG CCTCAATAGG ACCACAGTCA CGACGATCAC AGTCTATGAG CCACCCAAAC CCTTCATCAC CAGCAACAAC TCCAACCCCG TGGAGGATGA GGATGCTGTA GCCTTAACCT GTGAACCTGA GATTCAGAAC ACAACCTACC TGTGGTGGGT AAATAATCAG 50 AGCCTCCCGG TCAGTCCCAG GCTGCAGCTG TCCAATGACA ACAGGACCCT CACTCTACTC AGTGTCACAA GGAATGATGT AGGACCCTAT GAGTGTGGAA TCCAGAACGA ATTAAGTGTT GACCACAGCG ACCCAGTCAT CCTGAATGTC CTCTATGGCC CAGACGACCC CACCATTTCC CCCTCATACA CCTATTACCG TCCAGGGGTG AACCTCAGCC TCTCCTGCCA TGCAGCCTCT AACCCACCTG CACAGTATTC TTGGCTGATT GATGGGAACA TCCAGCAACA CACACAAGAG 55 CTCTTTATCT CCAACATCAC TGAGAAGAAC AGCGGACTCT ATACCTGCCA GGCCAATAAC TCAGCCAGTG GCCACAGCAG GACTACAGTC AAGACAATCA CAGTCTCTGC GGAGCTGCCC AAGCCCTCCA TCTCCAGCAA CAACTCCAAA CCCGTGGAGG ACAAGGATGC TGTGGCCTTC ACCTGTGAAC CTGAGGCTCA GAACACAACC TACCTGTGGT GGGTAAATGG TCAGAGCCTC CCAGTCAGTC CCAGGCTGCA GCTGTCCAAT GGCAACAGGA CCCTCACTCT ATTCAATGTC 60

| | ACAAGAAATG | ACGCAAGAGC | CTATGTATGT | GGAATCCAGA | ACTCAGTGAG | TGCAAACCGC | |
|---------------------------|------------|------------|------------|------------|------------|------------|--------|
| | | | TGTCCTCTAT | | | | - |
| | GACTCGTCTT | ACCTTTCGGG | AGCGGACCTC | AACCTCTCCT | GCCACTCGGC | CTCTAACCCA | |
| | TCCCCGCAGT | ATTCTTGGCG | TATCAATGGG | ATACCGCAGC | AACACACACA | AGTTCTCTTT | |
| | | | TAATAACGGG | | | | |
| | ACTGGCCGCA | ATAATTCCAT | AGTCAAGAGC | ATCACAGTCT | CTGCATCTGG | AACTTCTCCT | |
| | GGTCTCTCAG | CTGGGGCCAC | TGTCGGCATC | ATGATTGGAG | TGCTGGTTGG | GGTTGCTCTG | ATATAG |
| | | | | | | | |
| SEQ ID NO.: 24; CAP6D-1,2 | | | | | | | |
| | ATGGAGTCTC | CCTCGGCCCC | TCCCCACAGA | TGGTGCATCC | CCTGGCAGAG | GCTCCTGCTC | |
| | | | | | CONTROMOTO | | |

5

10 ACAGCCTCAC TTCTAACCTT CTGGAACCCG CCCACCACTG CCAAGCTCAC TATTGAATCC ACGCCGTTCA ATGTCGCAGA GGGGAAGGAG GTGCTTCTAC TTGTCCACAA TCTGCCCCAG CATCTTTTG GCTACAGCTG GTACAAAGGT GAAAGAGTGG ATGGCAACCG TCAAATTATA GGATATGTAA TAGGAACTCA ACAAGCTACC CCAGGGCCCG CATACAGTGG TCGAGAGATA ATATACCCCA ATGCATCCCT GCTGATCCAG AACATCATCC AGAATGACAC AGGATTCTAC 15 ACCCTACACG TCATAAAGTC AGATCTTGTG AATGAAGAAG CAACTGGCCA GTTCCGGGTA TACCCGGAAC TCCCTAAGCC TTCTATTAGC TCCAATAATA GTAAGCCTGT CGAAGACAAA GATGCCGTCG CTTTTACATG CGAGCCCGAA ACTCAAGACG CAACATATCT CTGGTGGGTG AACAACCAGT CCCTGCCTGT GTCCCCTAGA CTCCAACTCA GCAACGGAAA TAGAACTCTG ACCCTGTTTA ACGTGACCAG GAACGACACA GCAAGCTACA AATGCGAAAC CCAAAATCCA 20 GTCAGCGCCA GGAGGTCTGA TTCAGTGATT CTCAACGTGC TTTACGGACC CGATGCTCCT ACAATCAGCC CTCTAAACAC AAGCTATAGA TCAGGGGAAA ATCTGAATCT GAGCTGTCAT GCCGCTAGCA ATCCTCCCGC CCAATACAGC TGGTTTGTCA ATGGCACTTT CCAACAGTCC ACCCAGGAAC TGTTCATTCC CAATATTACC GTGAACAATA GTGGATCCTA CACGTGCCAA GCTCACAATA GCGACACCGG ACTCAACCGC ACAACCGTGA CGACGATTAC CGTGTATGAG 25 CCACCAAAAC CATTCATAAC TAGTAACAAT TCTAACCCAG TTGAGGATGA GGACGCAGTT GCATTAACTT GTGAGCCAGA GATTCAAAAT ACCACTTATT TATGGTGGGT CAATAACCAA AGTTTGCCGG TTAGCCCACG CTTGCAGTTG TCTAATGATA ACCGCACATT GACACTCCTG TCCGTTACTC GCAATGATGT AGGACCTTAT GAGTGTGGCA TTCAGAATGA ATTATCCGTT GATCACTCCG ACCCTGTTAT CCTTAATGTT TTGTATGGCC CAGACGACCC AACTATATCT 30 CCATCATACA CCTACTACCG TCCCGGCGTG AACTTGAGCC TTTCTTGCCA TGCAGCATCC AACCCCCCTG CACAGTACTC CTGGCTGATT GATGGAAACA TTCAGCAGCA TACTCAAGAG TTATTTATAA GCAACATAAC TGAGAAGAAC AGCGGACTCT ATACTTGCCA GGCCAATAAC TCAGCCAGTG GTCACAGCAG GACTACAGTT AAAACAATAA CTGTTTCCGC GGAGCTGCCC AAGCCCTCCA TCTCCAGCAA CAACTCCAAA CCCGTGGAGG ACAAGGATGC TGTGGCCTTC 35 ACCTGTGAAC CTGAGGCTCA GAACACAACC TACCTGTGGT GGGTAAATGG TCAGAGCCTC CCAGTCAGTC CCAGGCTGCA GCTGTCCAAT GGCAACAGGA CCCTCACTCT ATTCAATGTC ACAAGAAATG ACGCAAGAGC CTATGTATGT GGAATCCAGA ACTCAGTGAG TGCAAACCGC AGTGACCCAG TCACCCTGGA TGTCCTCTAT GGGCCGGACA CCCCCATCAT TTCCCCCCCA

40 GACTCGTCTT ACCTTTCGGG AGCGGACCTC AACCTCTCCT GCCACTCGGC CTCTAACCCA
TCCCCGCAGT ATTCTTGGCG TATCAATGGG ATACCGCAGC AACACACACA AGTTCTCTTT
ATCGCCAAAA TCACGCCAAA TAATAACGGG ACCTATGCCT GTTTTGTCTC TAACTTGGCT
ACTGGCCGCA ATAATTCCAT AGTCAAGAGC ATCACAGTCT CTGCATCTGG AACTTCTCCT
GGTCTCTCAG CTGGGGCCAC TGTCGGCATC ATGATTGGAG TGCTGGTTGG GGTTGCTCTG ATATAG
45